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Uremic frost

Dhanya Mohan[1] and Mohammed Railey[1]

[1]*Department of Nephrology, Dubai Hospital, Dubai, United Arab Emirates*

Correspondence: *Dhanya Mohan, Department of Nephrology, Dubai Hospital, PO Box 7272, Dubai, United Arab Emirates. E-mail: drdhanyapraveen@gmail.com*

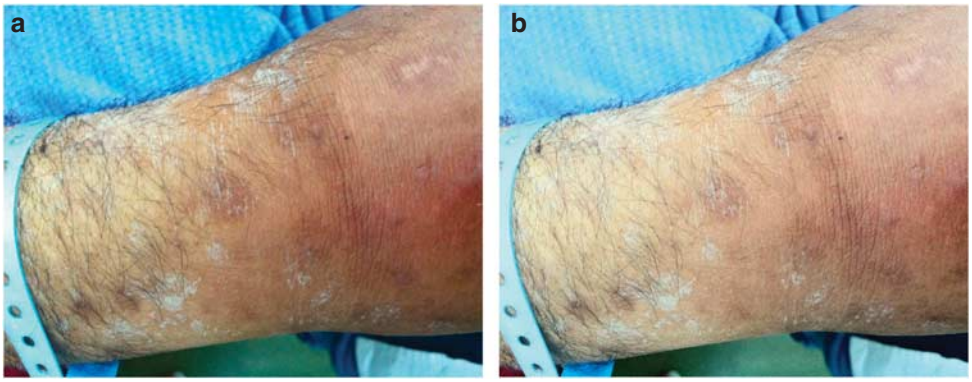

Figure 1 | Uremic frost—white, friable, crystalline deposits on the right forearm. (**a**, **b**) The hyperpigmentation associated with chronic kidney disease can also be seen.

A 50-year-old man with chronic kidney disease secondary to diabetic nephropathy was admitted owing to progressive breathlessness and leg swelling for 10 days, and reduced urine output for the whole day before the visit. Physical examination revealed a pulse of 98/minute, blood pressure of 149/78 mm Hg, bilateral crackles, and pitting edema up to the knees. The skin over the right forearm had scattered deposits of white, friable, crystalline material, with a frosted appearance. These were confluent in some and discrete in other areas (Figure 1a and b). Pertinent laboratory data were as follows: hemoglobin, 7.4 g/dl; sodium, 130 mEq/l; bicarbonate, 12 mEq/l; blood urea, 235 mg/dl; and creatinine, 13.1 mg/dl. End-stage kidney disease with uremia was diagnosed, and hemodialysis was initiated. The crystalline, white material on his forearm was thought to be uremic frost, which disappeared by the third day of hospitalization. Uremic frost was first described by Hirschsprung in 1865. This dermatological manifestation of severe azotemia is rarely seen today because of early dialytic intervention. The exact incidence is not known. The concentration of urea in sweat increases greatly when the blood urea nitrogen level is high. Evaporation of sweat with high urea concentration causes urea to crystallize and deposit on the skin. To verify that the crystals are composed of urea or nitrogenous waste, scrapings of the frost can be diluted in normal saline, which can then be tested for elevated urea nitrogen levels comparable to blood levels.